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23446 7590 12/27/2007 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER BELL, LOUIS W	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/688,373	<b>Applicant(s)</b> ELZUR, URI	
	<b>Examiner</b> Louis Bell	<b>Art Unit</b> 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☒ Claim(s) 23,24 and 26-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

1. This is a Non-Final Office Action in response to the present US Application filed on 10/17/2003. **Claims 1-31** are presented for examination. No Claims are withdrawn.

### *Claim Objections*

2. **Claim 26 and 27** objected to because of the following informalities: no antecedent bases for "completion queue (CQ)" and "share completion queue (SCQ)". Appropriate correction is required.

3. **Claim 23, 24, 28, 29 and 30** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Double Patenting*

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claim 1** of the current application (hereafter '373') is provisionally rejected under the judicially doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3 and 9 of copending Application No. 10688392 (hereafter '392'). Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of application 373 merely combines the subject matter in claims 1, 3 and 9 of copending application 392: queue pairs, QPs, send queue, SQ, shared received queue pairs, SRQ, limit values and provisioning. It would have been obvious to one skilled in the art to provision the SRQ with a resource manager as well as to allocate limited resources to each QPs with motivations such as better manage the resources of a SRQ during a communication process.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321 (d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 1, 2, 3, 4, 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Pub. : No.: US 2002/0087710 A1 to Aiken et al., "Aiken".

As to **claim 1** Scott discloses a communications system, comprising: a first queue pair (QP) associated with a first connection, the first QP comprising a first send queue (SQ) and being associated with a first limit value (*virtual channel 1, VC1, use*

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*send queues 260.0-260.1 and is limited to use receive queues 280.4-280.5 of the large receive buffer, col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A);*

a second QP associated with a second connection, the second QP comprising a second SQ and being associated with a second limit value (*virtual channel 2, VC2, uses send queues 260.2--260.6 and is limited to use receive queues 280.4-280.5 of the large receive buffer, col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A);*

a general pool comprising a shared receive queue (SRQ), the SRQ being shared by the first QP and the second QP (*large receive buffer is shared by VC1 and VC2 col. 9 lines 15-25 and fig. 6A);*

Scout does not expressly disclose a resource manager providing provisioning for the SRQ;

Aiken discloses a communication system where a network driver can grant memory to act as buffer storage (pg. 6 paragraph 44);

Scott further discloses at least one of the resource manager, the first QP and the second QP managing the first limit value and the second limit value (*QP associate to VC1 manages and QP associated with VC2 manages the amount of share buffer they receives, col. 9 line 1-25);*

Scout and Aiken are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scout and Aiken with motivations such as

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to allow a device to have a more usable memory than originally allocated (*Aiken*, pg. 2 paragraph 9).

As to **claim 2** Scott and Aiken disclose the communications system according to claim 1;

Scott further the first QP manages the first limit value, and wherein the second QP manages the second limit value (*QP associate to VC1 manages the amount of share buffer it receives and QP associated with VC2 manages the amount of share buffer it receives, col. 9 line 1-25*);

As to **claim 3** Scott and Aiken disclose the communications system according to claim 1;

Scott further discloses the first QP and the second QP are part of a particular node (*fig. 4 discloses various QP as part of the same device*).

As to **claim 4** Scott and Aiken disclose the communications system according to claim 1;

Scott further discloses an incoming message is received by the first QP, wherein at least one of the first QP and the resource manager determines a number of resources to request for the first QP, and wherein at least one of the first QP and the resource manager determines whether the first QP is allowed to draw any resources from the SRQ (*QP associated to VC1 determine to use receive queue 280.4 and 280.5 from the large receive buffer, fig. 4 and fig. 6A, col. 9 lines 1-25*).

As to **claim 11** Scott discloses a method for communications, comprising:  
establishing a first connection associated with a first queue pair (QP) (*VC1 uses send*

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*queue 260.0 and receive queue 280.4-280.5 col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A);*

establishing a second connection associated with a second QP (VC2 uses send queue 260.2 and receive queue 280.4-280.5 col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A);

sharing a shared receive queue (SRQ) among the first QP and the second QP (VC1 and VC2 shared the large receive buffer (fig 4, fig. 6A col. 9 lines 8-25); assigning a local limit value to be associated with the first connection, the local limit value being associated with a maximum number of SRQ buffers that are accessible to the first QP (*the receive buffer are partitioned among the virtual channels and out of the buffers in the large receive buffer 280, VC1 uses buffers 280.0 and 280.5, col.8 lines 1-25*);

Scott does not expressly disclose dropping the first connection or an incoming message on the first connection if the first QP attempts to access more SRQ buffers than its maximum number;

Aiken discloses discarding packet is the buffer is full and it is implied that the connection can be drop a cause of pour performance (*pg. 6 paragraph 44*);

Scoot and Aiken are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot and Aiken with motivations such as to allow a device to have a more usable memory than originally allocated (*Aiken, pg. 2 paragraph 9*).



As to **claim 12** Scott and Aiken disclose the communications system according to claim 11;

Scott further discloses the local limit value associated with the first connection is managed by the first QP (*QP associate to VC1 manages the amount of share buffer it uses from the large receive buffer, col. 9 line 1-25*);

7. **Claim 5, 6, 7 and Y** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Pub. : No.: US 2002/0087710 A1 to Aiken et al., "Aiken" as applied to claim 4 and further in view of Pub. No.: US 2002/0101820 A1 to Gupta et al.

As to **claim 5** Scott and Aiken disclose the communications system according to claim 4,

Scott and Aiken do not expressly disclose at least one of the first QP and the resource manager checks whether the first limit value is zero or whether the first limit value is smaller than a number requested by at least one of the first QP and the resource manager;

Gupta discloses checking a buffer size limit (*pg. 17 paragraph 256*);

Gupta discloses adjusting the value of a field used to re-resize the length of a queue (*pg. 3 paragraph 34*);

Scott, Aiken and Gupta are analogous art because they are from the same field of endeavor with respect to communications system;

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At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Gupta with motivations such as to allow true peer-to-peer broadband internet (*Gupta, pg. 1 paragraph 4*).

As to **claim 6** Scott and Aiken disclose the communications system according to claim 4,

Scott and Aiken do not expressly disclose the incoming message received by the first QP is dropped if the first QP is not allowed to draw any resources or enough resources from the SRQ;

Gupta discloses dropping a packet if the buffer does not have enough buffer space (*pg. 17 paragraph 256, claim 6*);

Gupta discloses adjusting the value of a field used to re-resize the length of a queue (*pg. 3 paragraph 34*);

Scott, Aiken and Gupta are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Gupta with motivations such as to allow true peer-to-peer broadband internet (*Gupta, pg. 1 paragraph 4*).

As to **claim 7** Scott and Aiken disclose the communications system according to claim 4,

Scott and Aiken do not expressly disclose 7 the first connection is dropped if the first QP is not allowed to draw any resources or enough resources from the SRQ.

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Gupta discloses dropping a packet if the buffer does not have enough buffer space and it is implied that the quality of service of the connection will deteriorate and thus the communication will be drop (*pg. 17 paragraph 256, claim 6*);

Gupta discloses adjusting the value of a field used to re-resize the length of a queue (*pg. 3 paragraph 34*);

Scott, Aiken and Gupta are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Gupta with motivations such as to allow true peer-to-peer broadband internet (*Gupta, pg. 1 paragraph 4*).

8. **Claim 8, 13, 14 and Y** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Pub. : No.: US 2002/0087710 A1 to Aiken et al., "Aiken" as applied to claim 4 and further in view of Pub. No.: US 2002/0133648 A1 to Goudie et al. "Goudie".

As to **claim 8** Scott and Aiken disclose the communications system according to claim 4,

Scott further discloses wherein the first QP draws resources from the SRQ, (*QP associated to VC1 utilizes buffer space from the large buffer queue (col. 9 lines 2-25)*);

Scott and Aiken do not expressly disclose at least one of the first QP and the resource manager decrements the first limit value based upon the resources drawn from the SRQ by the first QP

Goudie discloses adjusting the value of a field used to re-resize the length of a queue (pg. 3 paragraph 34);

Scott, Aiken and Goudie are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Goudie with motivations such as to allow a number of queue to be set up in the memory which is not limited by hardware (Goudie, pg. 1 paragraph 4).

As to **claim 13** Scott and Aiken disclose the communications system according to claim 11,

Scott further discloses receiving the incoming message via the first QP; drawing one or more buffers from the SRQ (VC2 receives messages and draw buffers from the large receive queue (fig. 4 col. 9 lines 1-25);

Scott and Aiken do not expressly disclose adjusting the local limit value based upon the one or more drawn buffers.

Goudie discloses adjusting the value of a field used to re-resize the length of a queue (pg. 3 paragraph 34);

Scott, Aiken and Goudie are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Goudie with motivations

such as to allow a number of queue to be set up in the memory which is not limited by hardware (Goudie, pg. 1 paragraph 4).

As to **claim 14** Scott, Aiken and Goudie disclose the communications system according to claim 13;

Goudie further discloses adjusting the local limit value comprises decrementing, by the first QP, the local limit value based upon the one ore more drawn buffers (the value of empty blocks is decrease when data is store in the queue pg. 4 paragraph 40-41);

Scott, Aiken and Goudie are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Goudie with motivations such as to allow a number of queue to be set up in the memory which is not limited by hardware (Goudie, pg. 1 paragraph 4).

9. **Claim 9, 10, 15 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Pub. : No.: US 2002/0087710 A1 to Aiken et al., "Aiken" as applied to claim 1 and further in view of Patent No.: US 6,721,806 B2 to Boyd et al. "Boyd".

As to **claim 9** Scott and Aiken disclose the communications system according to claim 1;

Scott and Aiken does not expressly disclose wherein the general pool comprises a shared completion queue (SCQ), wherein at least one of the first QP, the second QP and the resource manager monitors completions posted on the SCQ;

Boyd discloses a communication node with various QPs and completions queues (CQs) and where the QPs and CQs are shared by two RNICs, and where the CQ is used to create single point of completion notification for multiple QP (*col. 8 lines 22-35, col. 14 lines 22-55 fig. 11*);

Scott further at least one of the first QP, the second QP and the resource manager adjusts the first limit value or the second limit value based upon the monitored completions posted on the SCQ (*the QPs partition the large receive buffer, col. 9 lines 2-25*);

Scott, Aiken and Boyd are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott and Aiken with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (Boyd col. 2 lines 35-40).

As to **claim 10** Scott and Aiken disclose the communications system according to claim 1;

Scott and Aiken do not expressly disclose the first QP comprises a first completion queue (CQ) *wherein at least one of the first QP and the resource manager monitors completions posted on the first CQ*;

Boyd discloses QPs monitoring that the CQ create single point of completion notification to QPs (*col. 8 lines 22-35, fig. 4*);

Scott discloses at least one of the first QP and the resource manager adjusts the first limit value based upon the monitored completions posted on the first CQ (*QPs partition the large receive buffers based on their needs col. 9 lines 2-25*);

Scott, Aiken and boyd are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot and Aiken with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

As to **claim 15** Scott and Aiken disclose the communications system according to claim 11,

Scott and Aiken do not expressly disclose monitoring one or more completions posted on a first completion queue (CQ) of the first QP;

Boyd discloses monitoring that completed WQEs are posted in the CQ (*col. 8 lines 4-30*);

Scott further discloses adjusting the local limit value based upon the one or more monitored completions (*the QP partition the large receive buffer, col. 9 lines 2-25*);

Scott, Aiken and Boyd are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot and Aiken with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

As to **claim 17** Scott and Aiken disclose the communications system according to claim 11;

Scott and Aiken do not expressly disclose monitoring completions posted on a shared completion queue (SCQ), the SCQ being shared by the first QP and the second QP;

Boyd discloses monitoring completed WQE in a CQ which is a single point of completion for multiple queue pairs (*col. 8 lines 4-36*);

Scott further discloses adjusting the local limit value based upon the monitored completions (*the QPs partition the large receive buffer, col. 9 lines 2-25*);

Scott, Aiken and Boyd are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot and Aiken with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

10. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Pub. : No.: US 2002/0087710 A1 to



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Aiken et al., "Aiken" and Patent No.: US 6,721,806 B2 to Boyd et al. "Boyd" as applied to claim 15 above and further in view of Pub. No.: US 2002/0133648 A1 to Goudie et al. "Goudie".

As to **claim 16** Scott, Aiken and Boyd disclose the communications system according to claim 15,

Scott, Aiken and Boyd do not expressly disclose adjusting the local limit value comprises incrementing, by the first QP, the local limit value based upon the one or more monitored completions;

Goudie discloses the value of used blocks is increases when data is store in the queue (*pg. 4 paragraph 40-41*);

Scott, Aiken and Goudie are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Aiken and Goudie with motivations such as to allow a number of queue to be set up in the memory which is not limited by hardware (*Goudie, pg. 1 paragraph 4*).

11. **Claim 18, 19, 20 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Patent No.: US 6,611,883 B1 to Avery, "Avery" and Pub. No.: US 2002/01186667 A1 to Chitanda et al., "Chintada".

As to **claim 18** Scott discloses a communications system, comprising: a first queue pair (QP) associated with a first connection (*virtual channel 1, VC1, uses send queues 260.0-260.1 and receive queues 280.4-280.5, col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A*);

a second QP associated with a second connection (*virtual channel 2, VC2, uses send queues 260.2--260.6 and receive queues 280.4- 280.5, col. 8 lines 34-36, col. 9 lines 15-25, fig. 5A and fig. 6A*);

a shared receive queue (SRQ) shared by the first QP and the second QP (*large receive buffer is shared by VC1 and VC2, col. 9 lines 15-25 and fig. 6A and fig. 4*);

Scout does not expressly disclose a watermark indicating a low level of work queue elements (WQEs) on the SRQ;

Avery discloses WQE received at a receive queue, RQ, of a queue pair, QP, (*col. 6 lines 26-40*);

Scout and Avery are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scout and Avery with motivations such as to perform address mapping conventionally perform by an I/O memory management unit (*Avery, col. 3 lines 13-15*);

Chintada discloses a queue with a low level watermark (*pg. 6 paragraph 46, fig. 7*);

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Scoot, Avery and Chintada are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot, Avery and Chintada with motivations such as to reduce congestion in a communication system (Chintada, *pg. 2 paragraph 9*).

As to **claim 19** Scott, Avery and Chintada disclose the communications system according to claim 18,

Scoot and Avery do not expressly disclose if a number of WQEs on the SRQ drops below the watermark, then an asynchronous event is generated;

Chintada discloses a queue with a low level watermark and generating an event when a Que\_Dept\_Count is below the watermark (*pg. 6 paragraph 46*);

Scoot, Avery and Chintada are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot, Avery and Chintada with motivations such as to reduce congestion in a communication system (Chintada, *pg. 2 paragraph 9*).

As to **claim 20** Scott, Avery and Chintada disclose the communications system according to claim 19,

Chintada further discloses the asynchronous event notifies at least one of an upper layer protocol (ULP) layer, a buffer manager, and any part of a consumer that the

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number of WQEs on the SRQ has dropped below the watermark (*when a count is less than the watermark of the queue, the MAC layer information to the DLL upper layer, pg. 6 paragraph 46*);

Scoot, Avery and Chintada are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot, Avery and Chintada with motivations such as to reduce congestion in a communication system (Chintada, *pg. 2 paragraph 9*).

As to **claim 25** Scott discloses a method for communications, comprising: sharing a receive queue (RQ) between a first queue pair (QP) associated with a first connection and a second QP associated with a second connection (*VC1 uses send queue 260.0 and VC2 260.2 uses send queue and VC1 and VC2 share the receive queues 280.4 and 280.5, fig. 4, fig 5A and 6A, col. 8 lines 34-36, col. 9 lines 15-25*);

Scott does not expressly discloses setting a threshold that is associated with the shared RQ and is indicative of a particular number of work queue elements (WQEs) on the shared RQ; and generating an asynchronous event if the threshold is reached;

Avery discloses WQE received at a receive queue, RQ, of a queue pair, QP, (*col. 6 lines 26-40*);

Scoot and Avery are analogous art because they are from the same field of endeavor with respect to communications system;

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At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot and Avery with motivations such as to perform address mapping conventionally perform by an I/O memory management unit (*Avery, col. 3 lines 13-15*);

Chintada discloses a queue with a low level watermark and generating an event when a Que\_Dept\_Count is below the watermark (*pg. 6 paragraph 46*);

Scoot, Avery and Chintada are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot, Avery and Chintada with motivations such as to reduce congestion in a communication system (*Chintada, pg. 2 paragraph 9*).

12. **Claim 21, 26 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Patent No.: US 6,611,883 B1 to Avery, "Avery" and Pub. No.: US 2002/01186667 A1 to Chitanda et al., "Chintada" as applied to claim 19 above and further in view of Patent No.: US 6,721,806 B2 to Boyd et al. "Boyd".

As to **claim 21** Scott, Avery and Chintada disclose the communications system according to claim 19;

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Scott, Avery and Chintada do not expressly disclose at least one of the ULP layer, a buffer manager, and any part of a consumer analyzes completions posted on a shared completion queue (SCQ) shared by the first QP and the second QP;

Boyd discloses a consumer analyzing work completed and posted in a CQ share bay multiple QPs (*col. 8 lines 4-36*);

Scout, Avery, Chintada and Boys are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scout, Avery, Chintada and Boys with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

As to **claim 26** Scott, Avery and Chintada disclose the communications system according to claim 25;

Scott, Avery and Chintada do not expressly discloses analyzing completions on a completion queue (CQ) to determine if either the first QP or the second QP is draining the WQEs on the shared RQ;

Boyd discloses a monitored shared CQ (*col. 8 lines 5-35*);

Scout, Avery, Chintada and Boys are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scout, Avery, Chintada and Boys with

motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

As to **claim 27** Scott, Avery and Chintada disclose the communications system according to claim 26;

Scott, Avery and Chintada do not expressly disclose the CQ comprises at least one of a dedicated CQ and a shared completion queue (SCQ);

Boyd discloses dedicated and shared CQ (*col. 8 lines 23-36 and col. 14 lines 22-40*);

Scott, Avery, Chintada and Boys are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Avery, Chintada and Boys with motivations such as to allow RNICs to support switchover and switchback of reliable transport connections (*Boyd col. 2 lines 35-40*).

13. **Claim 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Patent No.: US 6,611,883 B1 to Avery, "Avery" and Pub. No.: US 2002/01186667 A1 to Chintada et al., "Chintada" Patent No.: US 6,721,806 B2 to Boyd et al. "Boyd" as applied to claim 21 above and further in view of Pub. No.: US 2002/0083175 A1 to Afek et al. "Afek".

As to **claim 22** Scott, Avery, Chintada and Boyd disclose the communications system according to claim 21;

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Scott, Avery, Chintada and Boyd do not expressly disclose the ULP layer determines which of the first QP or the second QP is transporting excessive traffic or offending traffic;

Afek discloses guard machine architecture that blocks and detect most malicious or excessive traffic flows (pg. 14 paragraph 300);

Scott, Avery, Chintada, Boys, and Afek are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scott, Avery, Chintada and Boys with motivations such as to provide protection against overload conditions at a node (Afek, pg. 1 paragraph 2).

14. **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: US 5,958,017 to Scott et al. "Scott" in view of Patent No.: US 6,611,883 B1 to Avery, "Avery" and Pub. No.: US 2002/01186667 A1 to Chitanda et al., "Chintada" as applied to claim 25 above and further in view of patent No.: 4,493,201 to Agrawal et al. "Agrawal".

As to **claim 31** Scott, Avery, Chintada disclose the communications system according to claim 25;

Scott, Avery, Chintada disclose dropping a WQE holding an out-of-order message from the SRQ upon reaching a particular watermark;

Agrawal discloses rejecting out of sequence frames (*col. 11 lines 5-10*);



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Scoot, Avery, Chintada, and Agrawal are analogous art because they are from the same field of endeavor with respect to communications system;

At the time of the invention, it would have been obvious to a person of ordinary skilled in the art to combine the teachings of Scoot, Avery, Chintada, and Agrawal with motivations such as to monitoring frame collision detection and recovery (*Agrawal, col. 4 lines 14-18*).

### ***Conclusion***

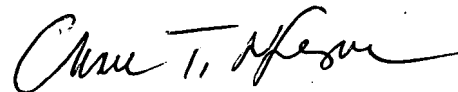
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Bell whose telephone number is 571-270-3312. The examiner can normally be reached on Monday-Friday 7:30 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/LB/



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